

CLAIMS

What is claimed is:

1. A method implemented on a multimedia receiver comprising:
monitoring coding rates for N multimedia streams; and
mapping said N multimedia streams across M decoders based on said
coding rates, wherein $M < N$.
2. The method as in claim 1 wherein mapping comprises static mapping
occurring once when said multimedia receiver is initialized.
3. The method as in claim 1 wherein mapping comprises dynamic
mapping occurring continually as said multimedia receiver processes said
multimedia streams.
4. The method as in claim 1 wherein said M decoders are Viterbi
decoders.
5. The method as in claim 4 wherein one of said coding rates is $R = 1/2$.
6. The method as in claim 1 wherein said N multimedia streams are
received from a plurality of satellite transponders.
7. The method as in claim 1 wherein said N multimedia streams are
received from a plurality of cable carriers.

8. A multimedia receiver apparatus comprising:
a plurality of decoders for decoding a plurality of multimedia streams; and
arbitration logic to map each of said multimedia streams to each of said
plurality of decoders based on processing load on each decoder and code rates
of each of said multimedia streams.

9. The apparatus as in claim 8 wherein said arbitration logic maps said
multimedia streams to equalize said processing load on each decoder.

10. The apparatus as in claim 9 wherein said decoders are Viterbi
decoders.

11. The apparatus as in claim 8 wherein said plurality of multimedia
streams are greater in number than said plurality of decoders.

12. The apparatus as in claim 8 wherein said arbitration logic maps said
multimedia streams once upon system initialization.

13. The apparatus as in claim 8 wherein said arbitration logic maps said
multimedia streams continually as said multimedia streams are received and
processed by said multimedia receiver apparatus.

14. An apparatus to efficiently decode a plurality of multimedia streams comprising:

buffers for storing multimedia data from said multimedia streams prior to decoding; and

arbitration logic to cause a particular multimedia stream to be serviced by a decoder based on the amount of multimedia data stored in one of said buffers for said particular multimedia stream.

15. The apparatus as in claim 14 wherein said arbitration logic monitors amounts of data stored in said buffers for each of said multimedia streams and causes multimedia streams with relatively more stored data to be serviced by said decoder.

16. The apparatus as in claim 14 further comprising:
one or more additional decoders to process multimedia streams responsive to said arbitration logic.

17. The apparatus as in claim 14 wherein said multimedia streams are received from one or more satellite transponders.

18. The apparatus as in claim 14 wherein said multimedia streams are received from one or more cable carriers.

19. A machine-readable medium having code stored thereon which defines an integrated circuit (IC), said IC comprising:

buffers for storing multimedia data from said multimedia streams prior to decoding; and

arbitration logic to cause a particular multimedia stream to be serviced by a decoder based on the amount of multimedia data stored in one of said buffers for said particular multimedia stream.

20. The machine-readable medium as in claim 19 wherein said arbitration logic monitors amounts of data stored in said buffers for each of said multimedia streams and causes multimedia streams with relatively more stored data to be serviced by said decoder.

21. The machine-readable medium as in claim 19 wherein said IC further comprises:

one or more additional decoders to process multimedia streams responsive to said arbitration logic.

22. The machine-readable medium as in claim 19 wherein said multimedia streams are received from one or more satellite transponders.

23. The machine-readable medium as in claim 19 wherein said multimedia streams are received from one or more cable carriers.

24. An apparatus comprising:

means for receiving a plurality of multimedia streams from a plurality of satellite transponders or cable carriers;

means for mapping said plurality of multimedia streams among a lesser plurality of decoders based on code rates of each of said multimedia streams.

25. The apparatus as in claim 24 wherein said means for mapping is further based on a current decoding load of each of said decoders.

26. The apparatus as in claim 24 wherein mapping comprises static mapping occurring once when said multimedia receiver is initialized.

27. The apparatus as in claim 24 wherein mapping comprises dynamic mapping occurring continually as said multimedia receiver processes said multimedia streams.

28. The apparatus as in claim 24 wherein said multimedia streams are convolutionally-encoded streams and said decoders are Viterbi decoders.

29. The apparatus as in claim 28 wherein one of said coding rates of at least one of said multimedia streams is $R = 1/2$.

30. The apparatus as in claim 24 wherein said multimedia streams are received from a plurality of satellite transponders.

31. The apparatus as in claim 24 wherein said multimedia streams are received from a plurality of cable carriers.